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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,289	12/07/2001	Pierre LeBrun	01184	4897
23338	7590	12/08/2003	EXAMINER	
DENNISON, SCHULTZ & DOUGHERTY 1745 JEFFERSON DAVIS HIGHWAY ARLINGTON, VA 22202			KASTLER, SCOTT R	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)	
09/926,289	LEBRUN ET AL.	
Examiner	Art Unit	
Scott Kastler	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.135(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11-7-2003 has been entered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-35 and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Montgrain. Montgrain teaches a device and method for injection of gas bubbles into a molten metal contained in a treatment volume (20) where the device includes a static injection part (7) made of an inert material which at col. 6, lines 23-32 for example states that the part may be made of graphite (stated by the applicant to be non-wettable to molten aluminum at page 10 of the instant specification for example), iron, silicon carbide (a refractory carbide) or refractory metals (all stated by the applicant, at claim 3 for example, to be wettable by molten aluminum), where the static part (7) includes a number of orifices (4) located at the top of tapered protuberances (3) the tops of which protuberances form planar surfaces, which are removable (by cutting for example), with a single orifice in each protuberance, configured to mechanically

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(geometrically) limit the contact area of the orifices, and bubble size so that bubbles do not come into contact while they are being formed (see col. 2 lines 39-41 for example), bubble size being limited to 10mm or below (see col. 7 line 37 for example), where the flow of the molten metal through the trough (20) provides a shear force to the molten metal, thereby showing all aspects of the above claims since, when using non wettable graphite, the ratio of protuberance diameter to orifice diameter is 5 (see col. 3 lines 19-21 where a protuberance diameter of 5 mm is cited and an orifice diameter of 1 mm is cited), and in any event, with respect to non-wettable materials, the use of non-wettable materials, such as the iron, silicon carbide or refractory metals used by Montgrain, provides a spreading ratio within the recited limits, as stated by the applicant at page 4, lines 11-15, and page 4, line 26 to page 5 line 15.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-35 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montgrain. As applied to claims 17-35 and 37-39 above, Montgrain shows all aspects of the above claims except the disposition of the orifices on a planar surface if the flat tops of the protuberances of Montgrain are not considered planar surfaces. Montgrain, at col. 5 lines 20-30 for example states that rather than using protuberances to contain the orifices, the orifices can be

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formed in a continuous surface of the diffuser plate (the static part). In this event, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the orifices of Montgrain operate in substantially the same manner for substantially the same purpose with substantially the same results as the orifices of the instant claims. It has been well settled that where a component shown by the prior art (the orifices and static part of Montgrain) is shown to operate in substantially the same manner with substantially the same results as the component as claimed, motivation to alter either the location of the component (movement of the orifices of Montgrain to a planar surface) or to alter the configuration of the component (forming the static part of Montgrain as a planar surface with orifices therein) would have been a modification obvious to one of ordinary skill in the art at the time the invention was made. See *In re Dailey*, 149 USPQ 47, *In re Japikse* 86 USPQ 70 and MPEP sections 2144.04 IV B and 2144.04 VI C. In the instant case, since Montgrain allows for the use of alternate configurations of the static part and orifice arrangement, including disposing the orifices on a planar surface of the static part, motivation to alter the shape of the static part of location of the orifices so that the orifices of Montgrain are located on a planar surface of the static part of Montgrain, without materially altering the operation of the orifices and static part of Montgrain, would have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

Claims 36 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montgrain in view of Manabu et al. As applied to claim 17 above, Montgrain shows all aspects of the above claims except the use of bubble detection means for monitoring the bubble size.

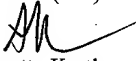
Manabu et al, cited by the applicant, teaches that bubbles in molten metal are known to be monitored by x-ray monitoring in order to more effectively control the gas introduction process. Because more effective control of the gas introduction process would also be desirable in the system disclosed by Montgrain, motivation to include x-ray monitoring means, as taught by Manabu et al, would have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Kastler whose telephone number is (703) 308-2506. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703) 308-3050. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
Scott Kastler  
Primary Examiner  
Art Unit 1742

sk